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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,754	02/27/2004	Travis A. Bizjak	NPW 360	9584

23581 7590 10/04/2007  
KOLISCH HARTWELL, P.C.  
520 SW YAMHILL STREET, Suite 200  
PORTLAND, OR 97204

EXAMINER
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HANDAL, KAITY V

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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10/04/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/789,754

Applicant(s)

BIZJAK ET AL.

Examiner

Kaity Handal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 20,23-32 and 42-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10,22 and 33-41 is/are rejected.
- 7) ☒ Claim(s) 15-19 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/21/2007.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 and 33-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grieve et al (US 2002/0150532 A1) in view of Aoyama et al. (US 6,455,008 B1).

With respect to claims 1, 5, 7-10, 33, 37-40, Grieve teaches a fuel processing system (fig. 1) comprising: a treatment region (18 & 24) configured to receive and remove solids (page 4, paragraph [0039], lines 1-2 and paragraph [0041], lines 1-4) (page 5, paragraph [0046], lines 5-8 and page 6, paragraph [0056], lines (12-14) from feed stream (water and fuel) (26 & 28) (page 4, paragraph [0038], lines 1-7); and a hydrogen producing region (10) in fluid communication with the treatment region (18) (as illustrated) (of any size and shape (page 4, paragraph [0039])) and configured to receive the feed stream and to produce therefrom a mixed gas stream containing hydrogen gas and other gases (page 6, paragraph [0051], lines 1-5), wherein the hydrogen producing region (10) includes at least one reforming catalyst and is adapted to produce the mixed gas stream by a steam reforming process (page 5, paragraph [0047]). Grieve teaches wherein the apparatus comprises an

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inert material (24) which evaporates, filters and mixes the fuel (page 5, paragraph [0046], lines 5-7 and page 6, paragraph [0056], lines 12-14) but fails to show wherein his apparatus further comprises a vaporizer. Aoyama teaches a fuel processing system, comprising: a hydrogen-producing region (fig. 1, 30) downstream of a vaporization region (26) (as illustrated), said vaporization region (26) configured to receive at least a liquid component of a feed stream (from water tank (22)) and to produce therefrom a vaporized component of the feed stream (illustrated); in order to vaporize the water (col. 4, lines 50-62).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a vaporizer upstream the reformer in Grieve's apparatus, as taught by Aoyama, in order to vaporize the water.

With respect to claim 6, Grieve teaches wherein the at least one filter (24) includes at least one sintered filter element (page 5, paragraph [0046], lines 5-14 and page 6, paragraph [0056], lines 12-14).

Regarding limitations recited in claims 2-4, 8-10 and 34-36 which are directed to a manner of operating disclosed device, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

3. Claims 21 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grieve et al (US 2002/0150532 A1) in view of Aoyama et al. (US 6,455,008 B1) as applied to claims 1 and 33 above, and further in view of Ogino (US 6,294,276 B1).

With respect to claims 22 and 41, Grieve as modified discloses all claim limitations as set forth above, but fails to show wherein a separation region is configured to receive the mixed gas stream and to produce therefrom a hydrogen-rich stream containing at least substantially pure hydrogen gas and a byproduct stream containing at least a substantial portion of the other gases. Ogino teaches a hydrogen producing region (fig. 1, 30), a vaporization region upstream thereof and a separation region (40) configured to receive the gas stream (17) and to produce therefrom a hydrogen-rich stream (18) containing at least substantially pure hydrogen gas and a byproduct stream (19) containing at least a substantial portion of the other gases (as illustrated) in order to give a gaseous hydrogen of a high purity (col. 11, lines 41-43).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a separation region configured to receive the mixed gas stream and to produce therefrom a hydrogen-rich stream containing at least substantially pure hydrogen gas and a byproduct stream containing at least a substantial portion of the other gases in the modified apparatus of Grieve, as taught by Ogino, in order to give a gaseous hydrogen of a high purity.

***Allowable Subject Matter***

Claims 15-19 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The combination of having a vaporization region/heat exchanger, a filter, and hydrogen producing region inside a housing is present in the prior art of Ogino (US 6,294,276 and Mentschel (US 3,954,422); however, having the filter placed external of the housing is not obvious and is not present in the prior art of record.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KH

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9/27/2007



GLENN A. CALDAROLA  
PRIMARY EXAMINER  
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T<1700